



Lincoln MPO Travel Demand Model

INTRODUCTION

This documentation outlines the general procedures and assumptions used to implement the City of Lincoln-Lancaster County (Lincoln MPO) Travel Demand Model in TransCAD Version 4.7. This documentation assumes that the user is familiar with the GIS and modeling tools of TransCAD. For instructions on how to run the model, refer to the “Lincoln MPO Travel Demand Model Interface” guide.

The Lincoln MPO travel demand model was developed in a two step process:

1. Converted Lincoln MPO’s current TP+ model to TransCAD Version 4.7.
2. Updated TransCAD model parameters and calibrated the model to current conditions.

The Lincoln MPO TP+model focused primarily on modeling daily vehicle trips. This model was developed with the ability to include non-auto modes of transportation, thus person trips is used as the generation variable. Person trips generated using non-auto modes are separated from the total person trips. The remaining person trips are converted to vehicle trips using auto occupancies. This process is different than the one used in the 1998 model, hence only select results can be compared. Demographics and roadway network consistent with conditions in Year 2004 were used for the calibration process.

Several enhancements were made to the model.

- The model networks and demographics were updated to the 560 zone system.
- Model street networks were vastly improved. Model links were “conflated” to reflect true geographic and link distances.
- Trip production/attraction rates were updated.
- Trip length distribution and friction factor table needed for the trip distribution gravity model were updated.
- Trips generated using non-auto modes were separated from the total person trips.
- A feedback model was added, which feeds congested travel time information generated by the assignment model back into the travel time matrix. The model iterates from trip distribution to assignment several times before finishing with the final results.

Figure 1 is a flow chart displaying the overall modeling process for the Lincoln MPO model. Lincoln MPO model included the following steps:

- Network Creation
- Trip Generation
- Network Skimming (Shortest Paths Matrix)
- Trip Distribution
- Modal Split
- Trip Assignment
- Feedback Model

Each step is described in detail in the later chapters of this document.



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FIGURE 1. LINCOLN MPO TRAVEL DEMAND MODEL PROCESS

